

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)

DATE

February 2000

BUDGET ACTIVITY

PE NUMBER AND TITLE

07 - Operational System Development**0305099F Global Air Traffic Management (GATM)**

COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
Total Program Element (PE) Cost	24,882	6,402	8,508	9,496	7,567	7,720	7,872	Continuing	TBD
674689 Global Access Architecture	22,780	6,402	8,508	9,496	7,567	7,720	7,872	Continuing	TBD
674690 GATM Integration	2,102	0	0	0	0	0	0	0	2,102
Quantity of RDT&E Articles	0	0	0	0	0	0	0	0	0

(U) **A. Mission Description**

4689: Global Air Traffic Management: GATM is the Air Force program designed to meet the evolving aviation requirements of the International Civil Aviation Organization (ICAO). GATM, Navigation and Safety, and Navigation Warfare (NAVWAR) are major components of the AF's Global Access, Navigation, and Safety (GANS) management effort. The Global Air Traffic Operations/Mobility Command and Control (GATO/MC2) System Program Office (SPO) supports GATM as the AF's central focal point for analyzing and evaluating operational requirements, developing aircraft system architectures, acquiring aviation equipment, and certifying weapon system implementation. The system architectures identify necessary equipment and aircraft capability shortfalls across the Air Force inventory, for mobility, information dominance, bombers, fighters, trainers, helicopters, and unmanned aerial vehicles. For those capabilities where no current solution exists, development activities are undertaken in conjunction with existing DoD communications, navigation, surveillance, and safety program offices. To facilitate development, integration, interoperability, and exploration of dual-use technologies, a reconfigurable cockpit and avionics test bed (RCAT) was developed. Dual-use capabilities of avionics to satisfy GATM and military requirements of the Air Force fleet will be explored. The SPO will continue projections of studies and prototype efforts necessary to ensure AF aviation weapon systems are postured to meet civil standards and future changes to the civil standards leading to free flight. This project supports the definition of requirements for ACAT III projects across multiple weapon systems. No existing program satisfies the requirements of the GATM initiatives.

4690: GATM Integration [for the C-130 platform]: Air Force Special Operations Command (AFSOC) funded a separate Multi-Mode Receiver (MMR) program to meet part of future GATM navigation requirements for AFSOC C-130s. GAO recommended the Air Force combine elements of AFSOC's Common Avionics Architecture for Penetration program with elements duplicated in the C-130 Avionics Modernization Program (AMP). GATM integration accurately reflects the application of AFSOC GATM funding from GATM integration to the overall C-130 AMP. Using GATM integration funds for the C-130 AMP eliminates the redundancy of two C-130 modernization efforts and minimizes down time. Realignment under the C-130 AMP provides MMR and Traffic Alert and Collision Avoidance System (TCAS) to comply with European and African airspace criteria. The MMR may incorporate a Microwave Landing System (MLS), Protected Instrument Landing System and Differential Global Positioning System. These modifications enable the MC-130H and other AFSOC aircraft to comply with changing ICAO airspace access criteria.

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0305099F Global Air Traffic Management (GATM)(U) **A. Mission Description Continued**

Effort includes engineering design work, mod kit design, and kit proofing. The MC-130H and other Special Operations Forces (SOF) aircraft have highly unique and specialized software. Modification of the software involves changing the code, testing the changes, and updating software documentation and maintenance technical orders. FY99 includes initial funding to begin engineering design. In accordance with GAO recommendations, FY00 and FY01 GATM Integration funding was transferred to the C-130 AMP program for GATM initiatives.

(U) **B. Budget Activity Justification**

Project 4689: This program upgrades avionics to add air traffic control capabilities to currently fielded weapon systems and is assigned Budget Activity 7, Operational Systems Development.

Project 4690: This program will develop mission essential capability for fielded weapon systems and is assigned Budget Activity 7, Operational Systems Development.

(U) **C. Program Change Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Total Cost</u>
(U) Previous President's Budget (FY 2000 PBR)	26,521	6,517	8,584	
(U) Appropriated Value	27,056	6,517		
(U) Adjustments to Appropriated Value				
a. Congressional/General Reductions	-535			
b. Small Business Innovative Research	-850			
c. Omnibus or Other Above Threshold Reprogram				
d. Below Threshold Reprogram	-650			
e. Rescissions	-139			
f. Other				
(U) Adjustments to Budget Years Since FY 2000 PBR		-115	-76	
(U) Current Budget Submit/FY 2001 PBR	24,882	6,402	8,508	TBD

(U) **Significant Program Changes:**

AFSOC GATM Integration funding has been applied against the C-130 Avionics Modernization Program (AMP). FY99 funds will be used to begin design engineering for AFSOC aircraft. FY00 and FY01 funds were transferred to the C-130 AMP for GATM initiatives.

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BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

07 - Operational System Development

0305099F Global Air Traffic Management (GATM)

674689

COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674689 Global Access Architecture	22,780	6,402	8,508	9,496	7,567	7,720	7,872	Continuing	TBD

(U) **A. Mission Description**

4689: Global Air Traffic Management: GATM is the Air Force program designed to meet the evolving aviation requirements of the International Civil Aviation Organization (ICAO). GATM, Navigation and Safety, and Navigation Warfare (NAVWAR) are major components of the AF's Global Access, Navigation, and Safety (GANS) management effort. The Global Air Traffic Operations/Mobility Command and Control (GATO/MC2) System Program Office (SPO) supports GATM as the AF's central focal point for analyzing and evaluating operational requirements, developing aircraft system architectures, acquiring aviation equipment, and certifying weapon system implementation. The system architectures identify necessary equipment and aircraft capability shortfalls across the Air Force inventory, for mobility, information dominance, bombers, fighters, trainers, helicopters, and unmanned aerial vehicles. For those capabilities where no current solution exists, development activities are undertaken in conjunction with existing DoD communications, navigation, surveillance, and safety program offices. To facilitate development, integration, interoperability, and exploration of dual-use technologies, a reconfigurable cockpit and avionics test bed (RCAT) was developed. Dual-use capabilities of avionics to satisfy GATM and military requirements of the Air Force fleet will be explored. The SPO will continue projections of studies and prototype efforts necessary to ensure AF aviation weapon systems are postured to meet civil standards and future changes to the civil standards leading to free flight. This project supports the definition of requirements for ACAT III projects across multiple weapon systems. No existing program satisfies the requirements of the GATM initiatives.

(U) **FY 1999 (\$ in Thousands)**

(U) \$2,161	System architecture definitions, development, and certification
(U) \$1,788	Operational requirements analysis, demonstration, and evaluation
(U) \$192	Acquisition of ID/IQ aviation equipment
(U) \$7,557	Prototype developments and the expansion of dual-use technologies
(U) \$9,270	Development of a GATM configurable cockpit and avionics test bed (RCAT)
(U) \$1,812	Nav/Safety and GPS/NAVWAR integration and interoperability evaluations
(U) \$22,780	Total

(U) **FY 2000 (\$ in Thousands)**

(U) \$1,129	System architecture definitions, development, and certification
(U) \$975	Operational requirements analysis, demonstration, and evaluation
(U) \$2,554	Prototype developments and the expansion of dual-use technologies
(U) \$1,426	Development of a GATM configurable cockpit and avionics test bed (RCAT)

Project 674689

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Exhibit R-2A (PE 0305099F)

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BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM)			PROJECT 674689		
(U) <u>A. Mission Description Continued</u>									
(U) <u>FY 2000 (\$ in Thousands) Continued</u>									
(U)	\$203	Acquisition of ID/IQ aviation equipment							
(U)	\$115	Nav/Safety and GPS/NAVWAR integration and interoperability evaluations							
(U)	\$6,402	Total							
(U) <u>FY 2001 (\$ in Thousands)</u>									
(U)	\$1,322	System architecture definitions, development, and certification							
(U)	\$1,358	Operational requirements analysis, demonstration, and evaluation							
(U)	\$2,786	Prototype developments and the expansion of dual-use technologies							
(U)	\$2,714	Development of a GATM configurable cockpit and avionics test bed (RCAT)							
(U)	\$207	Acquisition of ID/IQ aviation equipment							
(U)	\$121	Nav/Safety and GPS/NAVWAR integration and interoperability evaluations							
(U)	\$8,508	Total							
(U) <u>B. Project Change Summary</u>									
None									
(U) <u>C. Other Program Funding Summary (\$ in Thousands)</u>									
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	AF RDT&E								
(U)	Other APPN								
(U)	Aircraft Procurement, AF,	9,700	22,600	129,937	195,268	217,337	163,120	2,385	740,347
	BA-5, C-5 Avionics								
	Modernization Program, PE								
	0401119F								
(U)	RDT&E, AF, BA-7, C-5	33,594	44,172	30,084	7,295				118,685
	AMP, PE 0401119F, C-5								
	Airlift Squadrons								
(U)	Aircraft Procurement, AF,	1,875							15,197
	BA-5, C-5, 8.33 radio,								
Project 674689									

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BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM)				PROJECT 674689	
(U) C. Other Program Funding Summary (\$ in Thousands)									
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
PE0401119F									
(U) Aircraft Procurement, AF, BA-5, C-9 GATM, PE 0401314F			4,635	6,875	6,825				18,335
(U) Aircraft Procurement, AF, BA-5, C-9 RVSM, PE 0401314F	3,753	4,413	5,680						13,846
(U) Aircraft Procurement, AF, BA-5, C-9 TAWS, PE 0401314F	2,151	2,989	1,765						6,905
(U) Aircraft Procurement, AF, BA-5, C-9 TCAS, PE 0401314F	3,254								11,654
(U) Aircraft Procurement, AF, BA-5, KC-10 8.33 radio, PE 0401219F	288								2,324
(U) Aircraft Procurement, AF, BA-5, KC-10 GATM, PE 0401219F	18,765	23,609	22,255	29,102	13,503				107,234
(U) Aircraft Procurement, AF, BA-5, KC-10 ADS Broadcast Datalink, PE 0401219F			3,520	2,232	6,164	3,142	1,833		16,891
(U) Aircraft Procurement, AF, BA-5, KC-10 TCAS/TAWS, PE 0401219F	15,648	13,231	6,000						41,179
(U) Aircraft Procurement, AF, BA-5, C-17 8.33 radio, PE 0401130F									25,345
Project 674689									

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(U) C. Other Program Funding Summary (\$ in Thousands)									
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Aircraft Procurement, AF, BA-5, C-17 HFDL, PE 0401130F			3,150	3,150					6,300
(U) Aircraft Procurement, AF, BA-5, C-17 GPS Integrity Monitoring Capability, PE 0401130F	10,804	12,225	1,863						25,541
(U) Aircraft Procurement, AF, BA-5, C-17 PLSR, PE 0401130F									17,186
(U) Aircraft Procurement, AF, BA-5, C-17 ADS Upgrade, PE 0401130F						20,000	10,200	21,700	51,900
(U) Aircraft Procurement, AF, BA-5, C-17 RNP-4, PE 0401130F			2,622	2,622					5,244
(U) Aircraft Procurement, AF, BA-5, C-17 TAWS, PE 0401130F			343	14,571	21,496	7,094			43,504
(U) Aircraft Procurement, AF, BA-5, C-17 GATM PE 0401130F		25,600	38,400	12,800					76,800
(U) Aircraft Procurement, AF, BA-5, C-20 GATM, PE 0401314F			7,390	211	1,953				9,554
(U) Aircraft Procurement, AF, BA-5, C-20 TAWS, PE 0401314F	229	3,119	4,800	6,000					15,650
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BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
07 - Operational System Development				0305099F Global Air Traffic Management (GATM)				674689		
(U)	C. Other Program Funding Summary (\$ in Thousands)									
		<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>Cost to</u>	<u>Total Cost</u>
		<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U)	Aircraft Procurement, AF, BA-5, C-20 TCAS, PE 0401314F	2,720								4,284
(U)	Aircraft Procurement, AF, BA-5, C-21 GATM/New Generation Cockpit, PE 0401314F	57,450	8,627	6,717	9,470	2,964	1,645	1,645		94,415
(U)	Aircraft Procurement, AF, BA-5, C-25 Windshear Warning, PE 0401314F		200							7,805
(U)	Aircraft Procurement, AF, BA-5, C-25 GATM, PE 0401314F	2,623	7,787		648	911				11,058
(U)	Aircraft Procurement, AF, BA-5, C-25 TAWS, PE 0401314F		315							3,235
(U)	Aircraft Procurement, AF, BA-5, C-32 GATM, PE 0401314F			6,572	2,296	7,546				16,414
(U)	Aircraft Procurement, AF, BA-5, T-43 TCAS, PE 0804742F						1,743	6,500		11,325
(U)	Aircraft Procurement, AF, BA-5, T-43 FDR/CVR, PE 0804742F	1,636								7,711
(U)	Aircraft Procurement, AF, BA-5, T-43 TAWS, PE 0804742F			3,072	3,459		3,653	2,866		13,050
Project 674689										
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BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM)				PROJECT 674689	
(U) C. Other Program Funding Summary (\$ in Thousands)									
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Aircraft Procurement, AF, BA-5, C-130 Flight Data Recorder, PE 0401115F									5,737
(U) Aircraft Procurement, AF, BA-5, C-130 Avionics Modernization Program, PE 0401115F	2,754	38,572	61,035	61,371	211,234	181,910	276,229	3,103,495	3,938,425
(U) Aircraft Procurement, AF, BA-5, C-130 ETCAS, PE 0401115F	16,154	10,323	3,500	5,350	5,800	5,800	5,800		70,103
(U) Aircraft Procurement, AF, BA-5, C-135 8.33 radio, PE 0401218F		16,613	67,200						83,813
(U) Aircraft Procurement, AF, BA-5, C-135 Interphone replacement, PE 0401218F	24,103	15,224	1,050						43,577
(U) Aircraft Procurement, AF, BA-5, C-135 GATM, PE 0401218F	48,398	29,631	86,495	225,857	215,172	147,435	57,117	203,084	1,013,189
(U) Aircraft Procurement, AF, BA-5, C-135 RVSM, PE 0401218F	27,687	47,392	40,034	16,371					141,484
(U) Aircraft Procurement, AF, BA-5, C-135 TAWS, PE 0401218F	8,932	19,383	9,439	8,788					92,708
(U) Aircraft Procurement, AF, BA-5, C-135 FDR/CVR, PE 0401218F	9,852	13,808	33,308	20,691	11,853				104,170
Project 674689									

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BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM)				PROJECT 674689	
(U) C. Other Program Funding Summary (\$ in Thousands)									
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) Aircraft Procurement, AF, BA-5, C-135 Pacer CRAG, PE 0401218F	129,515	170,657	71,550						659,861
(U) Aircraft Procurement, AF, BA-5, C-137 TCAS, PE0401314									4,281
(U) Aircraft Procurement, AF, BA-5, C-141 TCAS, PE 0401118F	23,656	9,357							47,063
(U) RDT&E , AF, BA-7, E-3 GATM, PE 0207417F						24,000	72,000		96,000
(U) Aircraft Procurement, AF, BA-5, E-3 GATM, PE 0207417F						789	2,300		3,089
(U) Aircraft Procurement, AF, BA-5, E-4 8.33 radio, PE 0302015F	300	556							1,232
(U) Aircraft Procurement, AF, BA-5, E-4 TCAS, PE 0302015F	1,482	1,166	1,166						8,014
(U) Aircraft Procurement, AF, BA-5, E-4 TAWS, PE 0302015F	1,300	1,300	2,500						8,622
(U) Aircraft Procurement, AF, BA-5, E-4 GATM, PE 0302015F						6,731	20,500		27,231
(U) Aircraft Procurement, AF, BA-5, E-4 FDR/CVR, PE	359	364	364						1,087
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BUDGET ACTIVITY 07 - Operational System Development				PE NUMBER AND TITLE 0305099F Global Air Traffic Management (GATM)			PROJECT 674689	
(U) C. Other Program Funding Summary (\$ in Thousands)								
	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>Cost to</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>
0302015F								
(U) Aircraft Procurement, AF, BA-5, E-8 GATM, PE 0207581F					3,273	27,352	52,728	83,353
(U) RDT&E, AF, BA-7, E-8 GATM, PE 0207581F						23,700	45,300	69,000
(U) Aircraft Procurement, AF, BA-5, H-1 Integrated Data Acq Recorder, PE 0101235F	965							9,596
(U) Aircraft Procurement, AF, BA-5, H-1 TCAS, PE 0101235F			6,159	240	300	540		7,239
(U) Aircraft Procurement, AF, BA-5, GATM, PE 0305099F								1,750
(U) RDT&E, AF, BA07, B-52 GATM, PE 0101113F						10,000	25,000	40,000
(U) Aircraft Procurement, AF, BA-5, C-12 FDR/CVR, PE 0401314F	1,447							9,047
(U) Aircraft Procurement, AF, BA-5, C-12 TAWS, PE 0401314F	950	1,578	1,462					3,990
(U) D. Acquisition Strategy								
4689: The GATM Global Access Architecture acquisition strategy enables the GATO/MC2 SPO to guide equipment acquisition supporting global air traffic operations. The SPO will ensure standardization and certification of USAF platforms/systems that operate in the national and global air traffic environments. The SPO will also provide technical expertise and interface with appropriate product/support centers, battle labs, and Department of Defense (DOD) research and development facilities in the execution of assigned tasks. Program Research and Development Agreements (PRDAs), Cooperative Research and Development Agreements (CRDAs), and								
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0305099F Global Air Traffic Management (GATM)

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(U) **D. Acquisition Strategy Continued**

Indefinite Delivery/Indefinite Quantity (ID/IQ) contracts will be competitively awarded.

(U) **E. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) System Architecture Definitions	*				X				X			
(U) Operational Requirements Analysis	*				X				X			
(U) Prototype Development Contract Awards	*											
(U) Development of GATM Test Bed		*										
(U) Interoperability Test Bed Evaluations					X				X			
(U) GPS/NAVWAR Integration Activities		*				X			X			

* Denotes Completed Event

X Denotes Scheduled Event

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)								DATE February 2000		
BUDGET ACTIVITY					PE NUMBER AND TITLE				PROJECT	
07 - Operational System Development					0305099F Global Air Traffic Management (GATM)				674689	
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>										
							<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	
(U)	System architecture definitions, development, and certification						2,161	1,129		1,322
(U)	Operational requirements analysis, demonstration, and evaluation						1,788	975		1,358
(U)	Acquisition of ID/IQ aviation equipment						192	203		207
(U)	Prototype developments and the expansion of dual-use technologies						7,557	2,554		2,786
(U)	Development of a GATM configurable cockpit and avionics test bed (RCAT)						9,270	1,426		2,714
(U)	Nav/Safety and GPS/NAVWAR integration and interoperability evaluations						1,812	115		121
(U)	Total						22,780	6,402		8,508
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U) <u>Performing Organizations:</u>										
	<u>Contractor or</u>	<u>Contract</u>								
	<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>					
	<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
	<u>Product Development Organizations</u>									
	MIT	FFP	Nov 98	TBD	TBD	0	1,900	350	421	Continuing
	Honeywell	IDIQ	Nov 98	TBD	TBD	0	2,642	1,719	2,095	Continuing
	Allied Signal	IDIQ	Nov 98	TBD	TBD	0	1,975	1,654	1,973	Continuing
	Northrop Grumman	CPAF	Feb 99	TBD	TBD	0	2,499	0	0	0
	Rockwell Collins	IDIQ	Nov 98	TBD	TBD	0	978	512	582	Continuing
	MITRE Corporation	CPAF	Oct 98	TBD	TBD	0	4,163	678	934	Continuing
	Horizons Technology Inc	IDIQ	Feb 99	TBD	TBD	0	2,429	812	975	Continuing
	TASC	CPFF	Jan 99	728	728	0	728	0	0	0
	ARINC Inc	FFP	July 99	840	840	0	840	0	0	0
	UNK	FFP	Sep 99	750	750	0	750	0	0	0
	Bremmer Associates	FFP	Feb 99	729	729	0	729	0	0	0
	UNK	UNK	Sep 99	500	500	0	500	0	0	0
	MCR	IDIQ	Feb	TBD	TBD	0	350	135	203	Continuing
	Federal Tech Services	FFP	Aug 99	300	300	0	300	0	0	0
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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)										DATE
										February 2000
BUDGET ACTIVITY					PE NUMBER AND TITLE					PROJECT
07 - Operational System Development					0305099F Global Air Traffic Management (GATM)					674689
(U) <u>Performing Organizations Continued:</u>										
<u>Product Development Organizations</u>										
Various	various	various	TBD	TBD	0	896	191	903	Continuing	TBD
<u>Support and Management Organizations</u>										
MITRE Corporation	CPAF	Oct 99	TBD	TBD	0	477	215	218	Continuing	TBD
Various	Various	Various	TBD	TBD	864	624	136	204	Continuing	TBD
<u>Test and Evaluation Organizations</u>										
					<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>	<u>Total</u>
<u>Subtotals</u>					<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>	<u>Program</u>
Subtotal Product Development					0	21,679	6,051	8,086	TBD	TBD
Subtotal Support and Management					864	1,101	351	422	TBD	TBD
Subtotal Test and Evaluation										
Total Project					864	22,780	6,402	8,508	TBD	TBD

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PROJECT

07 - Operational System Development

0305099F Global Air Traffic Management (GATM)

674690

COST (\$ in Thousands)	FY 1999 Actual	FY 2000 Estimate	FY 2001 Estimate	FY 2002 Estimate	FY 2003 Estimate	FY 2004 Estimate	FY 2005 Estimate	Cost to Complete	Total Cost
674690 GATM Integration	2,102	0	0	0	0	0	0	0	2,102

(U) A. Mission Description

4690: GATM Integration [for the C-130 platform]: Air Force Special Operations Command (AFSOC) funded a separate Multi-Mode Receiver (MMR) program to meet part of future GATM navigation requirements for AFSOC C-130s. GAO recommended the Air Force combine elements of AFSOC's Common Avionics Architecture for Penetration program with elements duplicated in the C-130 Avionics Modernization Program (AMP). GATM integration accurately reflects the application of AFSOC GATM funding from GATM integration to the overall C-130 AMP. Using GATM integration funds for the C-130 AMP eliminates the redundancy of two C-130 modernization efforts and minimizes down time. Realigning under the C-130 AMP provides MMR and Traffic Alert and Collision Avoidance System (TCAS) to comply with European and African airspace criteria. The MMR may incorporate a Microwave Landing System (MLS), Protected Instrument Landing System and Differential Global Positioning System. These modifications enable the MC-130H and other AFSOC aircraft to comply with changing ICAO airspace access criteria. Effort includes engineering design work, mod kit design, and kit proofing. The MC-130H and other Special Operations Forces (SOF) aircraft have highly unique and specialized software. Modification of the software involves changing the code, testing the changes, and updating software documentation and maintenance technical orders. FY99 includes initial funding to begin engineering design. In accordance with GAO recommendations, FY00 and FY01 GATM Integration funding was transferred to the C-130 AMP program for GATM initiatives.

(U) FY 1999 (\$ in Thousands)

(U) \$1,064 Systems engineering
 (U) \$745 Software engineering
 (U) \$293 Management and Support
 (U) \$2,102 Total

(U) FY 2000 (\$ in Thousands)

(U) \$0 No Activity
 (U) \$0 Total

(U) FY 2001 (\$ in Thousands)

(U) \$0 No Activity
 (U) \$0 Total

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2A Exhibit)

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BUDGET ACTIVITY

PE NUMBER AND TITLE

PROJECT

07 - Operational System Development

0305099F Global Air Traffic Management (GATM)

674690

(U) **B. Project Change Summary**

AFSOC GATM Integration funding has been applied against the C-130 Avionics Modernization Program (AMP). FY99 funds will be used to begin design engineering for AFSOC aircraft. FY00 and FY01 funds were transferred to the C-130 AMP.

(U) **C. Other Program Funding Summary (\$ in Thousands)**

	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>	<u>FY 2005</u>	<u>Cost to</u>	<u>Total Cost</u>
	<u>Actual</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Estimate</u>	<u>Complete</u>	
(U) AF RDT&E									
(U) Other APPN									
(U) Aircraft Procurement, AF, BA-5, C-130 Avionics Modernization Program, PE 0401115F	100	55,000	74,480	77,392	224,757	192,531	271,688	1,539,700	2,437,778

(U) **D. Acquisition Strategy**

4690: The integration acquisition strategy for AFSOC communication/navigation modifications enables the GATO/MC2 SPO to use existing contracts, when possible, to assist in the technical design and integration. The modifications will be accomplished under the SOF Integrated Weapons System Support Program (IWSSP) contract.

(U) **E. Schedule Profile**

	<u>FY 1999</u>				<u>FY 2000</u>				<u>FY 2001</u>			
	1	2	3	4	1	2	3	4	1	2	3	4
(U) N/A												

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RDT&E PROGRAM ELEMENT/PROJECT COST BREAKDOWN (R-3)							DATE February 2000			
BUDGET ACTIVITY				PE NUMBER AND TITLE				PROJECT		
07 - Operational System Development				0305099F Global Air Traffic Management (GATM)				674690		
(U) <u>A. Project Cost Breakdown (\$ in Thousands)</u>										
						<u>FY 1999</u>		<u>FY 2000</u>		<u>FY 2001</u>
(U)	Software engineering					745				
(U)	System engineering					1,064				
(U)	Management and Support					293				
(U)	Total					2,102				
(U) <u>B. Budget Acquisition History and Planning Information (\$ in Thousands)</u>										
(U) <u>Performing Organizations:</u>										
	<u>Contractor or</u>	<u>Contract</u>								
	<u>Government</u>	<u>Method/Type</u>	<u>Award or</u>	<u>Performing</u>	<u>Project</u>					
	<u>Performing</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Activity</u>	<u>Office</u>	<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Activity</u>	<u>Vehicle</u>	<u>Date</u>	<u>EAC</u>	<u>EAC</u>	<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
	<u>Product Development Organizations</u>									
	TBD	TBD	Dec 98		1,747	0	1,814			0
	<u>Support and Management Organizations</u>									
	WR-ALC/LU	TBD				0	188			0
	ASC/LU	TBD				0	100			0
	<u>Test and Evaluation Organizations</u>									
(U) <u>Government Furnished Property:</u>										
		<u>Contract</u>								
		<u>Method/Type</u>	<u>Award or</u>							
	<u>Item</u>	<u>or Funding</u>	<u>Obligation</u>	<u>Delivery</u>		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
	<u>Description</u>	<u>Vehicle</u>	<u>Date</u>	<u>Date</u>		<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
	<u>Product Development Property</u>									
	TBD									
	<u>Support and Management Property</u>									
	TBD									
	<u>Test and Evaluation Property</u>									
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BUDGET ACTIVITY		PE NUMBER AND TITLE			PROJECT	
07 - Operational System Development		0305099F Global Air Traffic Management (GATM)			674690	
		<u>Total Prior</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget</u>	<u>Budget to</u>
		<u>to FY 1999</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>	<u>Complete</u>
<u>Subtotals</u>						<u>Total</u>
Subtotal Source for SBIR						<u>Program</u>
Subtotal Product Development		0	1,814		0	1,814
Subtotal Support and Management		0	288		0	288
Subtotal Test and Evaluation						
Total Project		0	2,102		0	2,102

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